



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/584,010

06/21/2006

Shiliang Li

97693

4805

24628

7590

07/22/2009

Husch Blackwell Sanders, LLP

Husch Blackwell Sanders LLP Welsh & Katz

120 S RIVERSIDE PLAZA

22ND FLOOR

CHICAGO, IL 60606

EXAMINER

BROMELL, ALEXANDRIA Y

ART UNIT

PAPER NUMBER

2167

MAIL DATE

DELIVERY MODE

07/22/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/584,010	Applicant(s) LI ET AL.	
	Examiner ALEXANDRIA Y. BROMELL	Art Unit 2167	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 March 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 - 13 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 - 13 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21 June 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claims 1 – 13 are pending in this Office Action.

Response to Arguments

Applicant's arguments, see Remarks, filed March 23, 2009, with respect to the rejection(s) of claim(s) 1 under 35 USC 102 and claims 2 – 13 under 35 USC 103 have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Paul Vagnozzi (U.S. Patent Publication 20030135495), hereinafter, "Vagnozzi." This new ground of rejection is necessitated by the claim amendments filed March 23, 2009.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1 – 2, 6 – 10, and 13 are rejected under 35 U.S.C. 102(e) as being unpatentable over Paul Vagnozzi (U.S. Patent Publication 20030135495), hereinafter, "Vagnozzi."

With respect to claim 1, Vagnozzi teaches setting an ordinal array directory structure composed of a group of record deviations, in which, a record deviation is a position deviation of a record (i.e. each record is stored with a corresponding pointer stored in a table, paragraph [0047], where arrays are used to store the records, paragraph [0007]), each directory in the directory structure stores the position deviation of one record on a data page (i.e. each record is stored with a corresponding pointer stored in a table, paragraph [0047], where the indexed records are for individual document pages, paragraph [0012]), each directory stores the position deviation of one record (i.e. each record is stored with a corresponding pointer stored in a table, paragraph [0047], where arrays are used to store the records, paragraph [0007]), the deviation of one record is selected to be stored in the directory every certain number of records (i.e. record number and offsets are stored, paragraph [0036], also see figure 1), and

searching for relative records in the directory by adopting a locating algorithm (i.e. index can be searched through for specified data, paragraph [0148]), after locating one certain directory, searching the relative group of records of the data page in order according to the record deviation stored in the directory and locating the record to be searched for accurately (i.e. pages are indexed, paragraphs [0231 - 240], and index can be searched through for specified data, paragraph [0148]), and output the deviation of the record for reading or updating the record (i.e. results are output, paragraph [0047]).

With respect to claim 2, Vagnozzi teaches putting the record to be searched for into a field structure (i.e. records are put into data fields, [0004]), and comparing the record on the data page with the field structure (i.e. comparing records with fields, [0006]).

With respect to claim 6, Vagnozzi teaches after finding the record, selecting records orderly from index with the number of low to compare with the field structure, till the record next to this record is a up record index of the index with the number of up, if the record is found during this process, finishing the search on this page, if the record is not found, turning to the next page to perform the same match (i.e. if a search is conducted, the search will end if a match is found on a page, otherwise it will continue until it finds the required field, [0253]).

With respect to claim 7, Vagnozzi teaches when the record number of indices is full due to inserting of one record onto a data page in a database, splitting the current index into two ones, so as to increase a index (i.e. when the index is full, it is split and the indices are combined within the same blocks instead of adding blocks, and wasting space, [0226]).

With respect to claim 8, Vagnozzi teaches if the total number of records on the index where the record locates exceeds a maximum value after inserting the record into a chain table, moving all of the indices behind this index one bit backward, thus, increasing the index, and

dividing all the records on the index where this record belongs to into two parts, and attaching these two parts of records to the two index respectively (i.e. if the index is

Art Unit: 2167

full, it is split and the indices are combined within the same blocks instead of adding blocks, and wasting space, [0226]).

With respect to claim 9, Vagnozzi teaches when deleting a record, taking it out from a chain table and setting a deleting mark to it (i.e. record is taken out and marked invalid, [0038]).

With respect to claim 10, Vagnozzi teaches obtaining an index next to this index first, and judging the record number of the next index, if the record number exceeds a minimum value, taking out a record from the next index, and adding it to the current index, if the record number is less than or equal to the minimum value, combining these two indices, and deleting the current index (i.e. indices are combined when deleted, [0226]).

With respect to claim 13, Vagnozzi teaches after finding the record, selecting records orderly from index with the number of low to compare with the field structure, till the record next to this record is a up record up rec of the index with tile number of up, if the record is found during this process, finishing the search on this page, if the record is not found, turning to the next page to perform the same match (i.e. if a search is conducted, the search will end if a match is found on a page, otherwise it will continue until it finds the required field, [0253]).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 3 – 5, and 11 – 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Paul Vagnozzi (U.S. Patent Publication 20030135495) in view of Elie Kosas (U.S. Patent Publication 20020095421), hereinafter, “Kosas.”

With respect to claim 3, Vagnozzi teaches a database indexing method [0010]. Vagnozzi does not explicitly disclose low and up as claimed.

However, Kosas teaches first endowing two variables low and up which represent the number of index with initial values, in which, low is endowed with a value of 0, up is endowed with a value that is a total number of index on the page, then searching by adopting locating algorithm, and judging which index the record belongs to

Art Unit: 2167

(i.e. variables low and high represent layers of row IDs, where 0 corresponds to low density, up to a high of n, [0238]).

Vagnozzi and Kosas are analogous art because they are from the same field of endeavor of accessing and searching data. At the time of the invention, it would have been obvious to one of ordinary skill in the art to modify the teachings of Vagnozzi with the teachings of Kosas in order to index records on a data page (Vagnozzi, [0231]). The motivation for doing so would have been to create a page indexing method that allows quick search execution (Vagnozzi, [0234]).

With respect to claim 4, Vagnozzi teaches a database indexing method [0010]. Vagnozzi does not explicitly disclose that the locating algorithm is a dichotomizing algorithm.

However, Kosas teaches locating algorithm is dichotomizing locating algorithm (i.e. dichotomic search is used, [0202]).

Vagnozzi and Kosas are analogous art because they are from the same field of endeavor of accessing and searching data. At the time of the invention, it would have been obvious to one of ordinary skill in the art to modify the teachings of Vagnozzi with the teachings of Kosas in order to index records on a data page (Vagnozzi, [0231]).

With respect to claim 5, Vagnozzi teaches a database indexing method [0010]. Vagnozzi does not explicitly disclose that the locating algorithm is a dichotomizing algorithm.

However, Kosas teaches dichotomizing algorithm is to take out a medial value continuously to compare with the field structure, until the value of up-low is not more than 1 (i.e. dichotomic searches are used to obtain the desired result, [0305], 0308]).

At the time of the invention, it would have been obvious to one of ordinary skill in the art to modify the teachings of Vagnozzi with the teachings of Kosas in order to index records on a data page (Vagnozzi, [0231]).

With respect to claim 11, Vagnozzi teaches a database indexing method [0010]. Vagnozzi does not explicitly disclose that the locating algorithm is a dichotomizing algorithm.

However, Kosas teaches locating algorithm is dichotomizing locating algorithm (i.e. dichotomic search is used, [0202]).

At the time of the invention, it would have been obvious to one of ordinary skill in the art to modify the teachings of Vagnozzi with the teachings of Kosas in order to index records on a data page (Vagnozzi, [0231]).

With respect to claim 12, Vagnozzi teaches a database indexing method [0010]. Vagnozzi does not explicitly disclose that the locating algorithm is a dichotomizing algorithm.

However, Kosas teaches locating algorithm is dichotomizing locating algorithm (i.e. dichotomic search is used, [0202]).

At the time of the invention, it would have been obvious to one of ordinary skill in the art to modify the teachings of Vagnozzi with the teachings of Kosas in order to index records on a data page (Vagnozzi, [0231]).

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ALEXANDRIA Y. BROMELL whose telephone number is (571)270-3034. The examiner can normally be reached on M - R 9 - 3.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John R. Cottingham can be reached on 571-272-7079. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Alexandria Y Bromell/
Examiner, Art Unit 2167
July 19, 2009

/S. A. A./
Primary Examiner, Art Unit 2162

/John R. Cottingham/
Supervisory Patent Examiner, Art Unit 2167